



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/813,886

03/31/2004

Ligang Zhang

026-0047

5768

22120

7590

06/15/2007

ZAGORIN O'BRIEN GRAHAM LLP
7600B NORTH CAPITAL OF TEXAS HIGHWAY
SUITE 350
AUSTIN, TX 78731

EXAMINER

IM, JUNGHWA M

ART UNIT

PAPER NUMBER

2811

MAIL DATE

DELIVERY MODE

06/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary

Application No.

10/813,886

Applicant(s)

ZHANG ET AL.

Examiner

Junghwa M. Im

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-19, 23-31, 33-42, 45-51 and 53-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-19, 23-31, 33-42, 45-51 and 53-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of claims 1, 23, 24, 42, and 55 of Embodiment 3 in the reply filed on March 26, 2007 is acknowledged. Upon reconsideration, however, the examiner is of the opinion that the requirement is improper. The restriction requirement is, therefore, withdrawn. And all the pending claims will be examined.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10-19, 23-31, 33-42, 45-51 and 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gomez et al. (US 6847282) hereinafter Gomez in view of Andrews (US 5959522) and Brown et al. (US Pat. Pub. 2004/0140862), hereinafter Brown.

Regarding claims 1, 23, 24, 42, 45-51 and 53-55, Fig. 5 of Gomez shows an apparatus/method comprising:

an inductor (510, 512);

an electrically conductive enclosure (516, 518 and 1302 in Fig. 13; col. 8, lines 5
12) electromagnetically shielding the inductor.

Fig. 5 of Gomez shows most aspects of the instant invention except the electrically conductive enclosure having an aperture at least as large as the inductor, the aperture being

Art Unit: 2811

substantially centered around a projected surface of the inductor; and one or more electrically conductive links extending across the aperture perpendicular to each other and electrically coupled to the electrically conductive enclosure, wherein the aperture is formed in an electrically conductive plate of the electrically conductive enclosure, and wherein the electrically conductive plate is formed by a plurality of continuous conductive patterns, each of the continuous conductive patterns being substantially concentric with respect to the aperture. Fig. 2 of Andrews shows an aperture at least as large as the inductor (140) formed in an electrically conductive plate of the electrically conductive bottom shield (142) and one or more electrically conductive links (156) extending and electrically coupled to the electrically conductive enclosure, wherein the electrically conductive plate is formed by a plurality of continuous conductive patterns, each of the continuous conductive patterns being substantially concentric with respect to the aperture.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Andrews into the device of Gomez in order to have an aperture at least as large as the inductor formed in an electrically conductive plate of the electrically conductive shield and one or more electrically conductive links extending and electrically coupled to the electrically conductive enclosure, wherein the electrically conductive plate is formed by a plurality of continuous conductive patterns, each of the continuous conductive patterns being substantially concentric with respect to the aperture to reduce the noise in the device.

The combination of Gomez/Andrews fails to show that one or more electrically conductive links extending across the aperture perpendicular to each other. Fig. 6(b) of Brown

Art Unit: 2811

shows a shield (304) having conductive links (302) extending across the aperture perpendicular to each other.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Brown into the device of the combination of Gomez/Andrews in order to have conductive links in the shield extending across the aperture perpendicular to each other to increase the noise reduction.

And it would be obvious that the combination of Gomez/Andrews/Brown would show the aperture has an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor since the aperture of Andrews is formed outside of the spiral inductor.

Regarding claims 2 and 25, Fig. 2 of Andrews shows the aperture is substantially parallel to a plane of current flow in the inductor.

Regarding claims 3 and 26, it would be obvious that the combination of Gomez/Andrews/Brown would show the aperture has an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor since the aperture of Andrews is formed outside of the spiral inductor.

Regarding claims 4 and 27, the combination of Gomez/Andrews/Brown would show the electrically conductive links reduce an effect of electromagnetic signals external to the electrically conductive enclosure on the inductor since the device of the combination of Gomez/Andrews/Brown would have substantially similar structure to the one recited in the instant invention.

Regarding claims 5 and 28, the combination of Gomez/Andrews/Brown fails to show the electrically conductive links reduce coupling in the inductor from external sources by approximately 6dB. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the electrically conductive links reducing the coupling in the inductor from external sources by approximately 6dB in order to accommodate the circuit parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 6 and 29, the combination of Gomez/Andrews/Brown fails to show the electrically conductive links are approximately 5 um wide. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the electrically conductive links are approximately 5 um wide to meet the required specification, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 7 and 30, Fig. 2 of Andrews the electrically conductive links are formed in the one or more traditional integrated circuit layers.

Regarding claims 8 and 31, Fig. 5 of Gomez shows the electrically conductive enclosure includes a top plate, a bottom plate, and sidewalls (col. 8, lines 5-19).

Regarding claims 10 and 33, Fig. 2 of Andrews shows the aperture is formed in the bottom plate.

Regarding claims 11 and 34, Fig. 6B of Gomez shows the bottom plate is formed in one or more integrated circuit metal layers that are formed on the integrated circuit die.

Regarding claims 12 and 35, Fig. 5 of Gomez shows the top plate is formed in a metal layer formed on the integrated circuit die.

Regarding claims 13 and 36, Gomez discloses the top plate/metal layer is formed in a redistribution layer that are formed on the integrated circuit die (col. 3, lines 28-38).

Regarding claims 14 and 37, Gomez discloses that the top plate is formed in a package substrate (col. 3, lines 28-38).

Regarding claims 15 and 38, Fig. 7 of Gomez shows that the inductor (of the connecting portions) is formed at least partially in one or more metal layers of an integrated circuit die thicker than others of the metal layers.

Regarding claims 16, 17 and 39, Gomez discloses that the inductor is formed at least partially in one or more redistribution layers formed on an integrated circuit die (col. 3, lines 28-38).

Regarding claims 18 and 40, the combination of Gomez/Andrews/Brown fails to show a conductor forming the inductor is 10 um wide. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a conductor forming the inductor is 10 um wide to accommodate the required specification, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 19 and 41, the combination of Gomez/Andrews/Brown fails to show the aperture and the inductor are effectively spaced at least 10.25 um apart.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the aperture and the inductor are effectively spaced at least 10.25 um apart

Art Unit: 2811

in order to accommodate the required specification, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

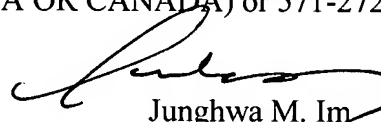
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2811

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on (571) 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Junghwa M. Im
Examiner
Art Unit 2811

jmi
6/11/2007